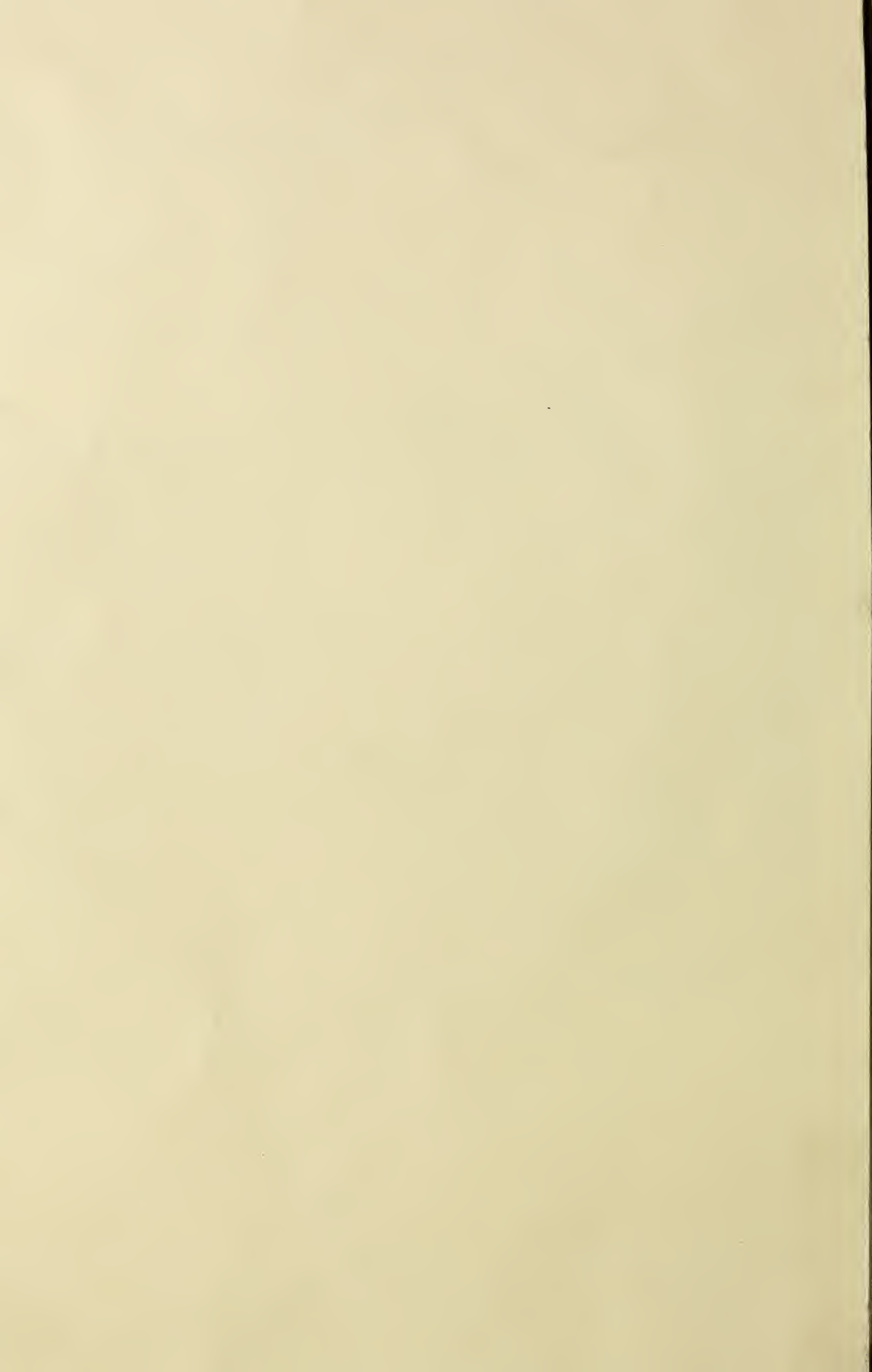


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VOLUME XXVII

NUMBER 7

The Agricultural Student

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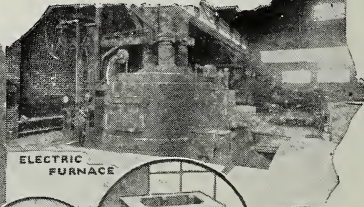
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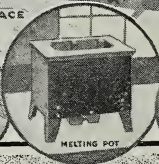
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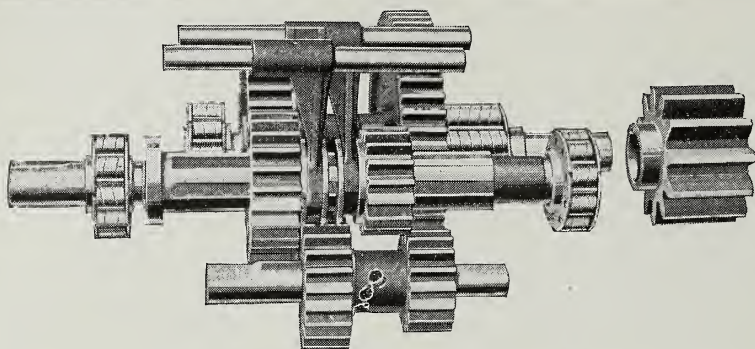
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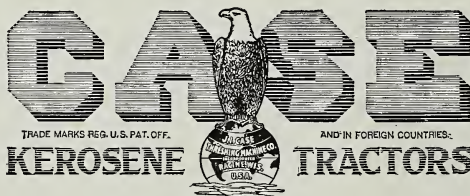
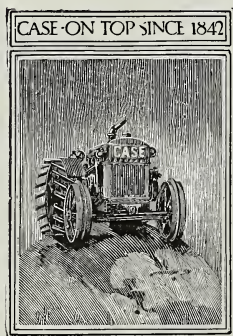
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Contributors

F. H. Eno
E. M. Mendenhall

J. B. Park

J. C. Neff
Madge Grubb

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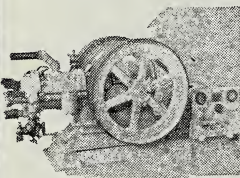


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The Agricultural Student

VOL. XXVII

OHIO STATE UNIVERSITY, COLUMBUS, OHIO, MARCH, 1921

No. 7

FARM AND LOCAL TOWNSHIP ROADS

By F. H. ENO.

**(How to build them cheaply for efficient service is dealt with fully in the following article by Mr. Eno, who is Professor of Civil Engineering at Ohio State University.)*

THE modern farmer needs no preaching to bring him to the realization that good roads are a necessity, not only from county seat to county seat and from town to town, but also from his farm gate to the county roads and from his barn yard to the various fields on his farm. The modern farm is laid out into definite fields and a main farm road with connecting laterals gives access to every field. Every farm cannot front on a main market or an inter-county highway, but it should have some form of an improved road connecting to them. It is for the information of those building these roads that this article is written.

CHARACTER AND EXTENT OF TRAFFIC.

Roads connecting from one main traveled road to another are very likely to draw a considerable amount of thru traffic, as soon as they are improved. For this reason such roads need more careful consideration given to the character of the road surface and to the treatment given the subsoil in the formation of a subgrade. The traffic using the improved road is liable to very much exceed that formerly using the mud road. It does not pay therefore for the township officers to pave a township road for present traffic only, nor does it pay to use any light, flimsy form of construction, knowing full well that later there will spring up a traffic heavier than the pavement will bear.

It is well, therefore, in planning any township road, to look over all prob-

able tributary territory and estimate so far as possible what may be expected in traffic during the ten or fifteen years following the road improvement. Then plan the width of road, the character of material which should be used and the depth of that material necessary to carry the traffic without breaking down under it. Where nearby roads have already been improved, take a traffic census to aid in arriving at proper decisions. With the farm road the farmer can estimate closely the amount and the weight of load that will eventually be handled over the road.

PREPARATION OF SUBGRADE.

The most important part of any road construction is the preparation of the subgrade—the surface soil upon which the road rests. Not one of my readers would think of constructing a gravel, stone, concrete, tar or brick road upon a pond of water. Yet, many a road has been built upon a clay soil so located that water could not be kept out of it—and you know that clay mixed with water is a fluid. The consequence has been that the road has quickly broken up. The trouble has been laid to heavy traffic, poor gravel, poor material, too thin a road surface—or anything except that which was to blame—namely, the poor judgment of the builder and the undrained clay beneath the road.

SOILS AND DRAINAGE.

In building any road, first consideration should be given to the kind of soil

upon which the road is to rest. If the soil is porous and loamy, or sandy and gravelly, the under drainage will take care of itself. In clay soils, however, careful attention should be given to both surface and under-drainage. If the road is to be much used during the early spring thaws, it may be necessary on clay soils to build up the road by spreading 3 inches to 5 inches of porous gravel beneath the real road material.

Few clays permit water to drain thru them freely, but many of them are very quickly affected by water, becoming extremely plastic and unstable in its presence. Some clays draw water by capillarity much more freely than others. Such clays are very close grained and therefore very difficult to drain.

For farm roads probably two phases of drainage should be emphasized—good surface drainage and side tile drainage. Surface drainage is secured by crowning the road material used. For an 8 foot gravel farm road the crown should be about 3 inches. The shoulders outside the graveled portion should continue to slope down at the rate of about 2 inches to the foot for about 5 feet on either side of the road, thus forming a slight ditch to carry away surface water. These side ditches should be connected to the nearest creek or depression whenever opportunity offers in order to free them from water and thus prevent the softening of the road bed by seepage. In gravelly, sandy soil no further drainage is necessary. In heavy soils, farm tile laid beneath the side ditches on either side of the road, or a single line of tile laid beneath the center line of the road, will be well worth all its costs. The tile under the center of the road should be laid two feet or more in depth and be covered with clean gravel to subgrade level. Farm roads should

have a road bed 8 feet wide with sufficient added width to permit vehicles to pass and to provide for surface drainage. The strip allotted to the road therefore should be from 16 to 20 feet wide. The surface of the ground should be smoothed and graded with a split log or a metal edged road drag into a smooth bed 8 feet wide having a crown in the center about 3 inches above the edges of the bed. A road grader may be rented from the township trustees or a home made road drag built. The latter is a desirable tool to have for use in the maintenance of the road.

Instructions how to build and operate a road drag may be obtained by writing to the State Highway Department at 335 South High Street, Columbus, O., for Bulletin No. 20, or for a copy of Mr. A. H. Hinkle's book on Road Maintenance.

In operating a road drag the operator, by shifting his weight on the drag, can cause it to dig into the soil at one end and carry the earth toward the center, or he can cause it to act simply as a smoothing edge. To secure adequate drainage it is best to keep the road bed above the general surface level. The road should have a crown of about 3 inches above the surrounding surface and this may be secured by grading earth from the sides to the center of the road. Having graded the road bed the next point to consider will be the choice of the proper road materials.

ROAD MATERIALS.

Gravels—The traffic on farm and secondary roads does not need,—and the tax value of the adjoining land will not permit,—the expenditure of large sums of money in the construction of these roads. So far as possible local

materials should be used. About two-thirds of the area of the state of Ohio, including the northern and western portions of the state, lie within the areas covered by glacial action. Within these areas gravel is of common occurrence. It is found in terminal and lateral moraines, eskars and other glacial deposits. The present streams have washed away many of these glacial gravel beds and re-deposited the gravel in long belts along the river valleys; in this process the clay and decayed stone, originally present in the glacial gravels, have been largely washed away leaving the river gravel in many cases so clean that it will not compact when

placed in a road. In any case the gravel must contain sufficient clay or fine material to bind it compactly in the road. When the available gravel will not compact, usually somewhere adjacent to the road or gravel pit will be found a gravelly clay that when added in proper proportions will cause the clean gravel to compact readily. Practically any gravel which will stand in a perpendicular bank in the pit for years after the pit has been opened, contains a sufficient quantity of binding materials to bind up in the road and make a good surface. If in addition to that quality, it is composed of hard, durable

(Continued on page 324)

THE CASE FOR SEED CORN

By JACOB C. NEFF, County Agent, Belmont County.

GROWING a crop of corn might be paralleled to running a race,—the last lap counts a heap, but also is the race lost if the runner stumbles at the start. People attending athletic events are familiar with the call,—“On Your Mark,” “Get Set,” “Go.” Seemingly the race is begun before it is started. Thus with the corn crop or any other crop so far as we are concerned, there is need of being “all set” when the time of planting comes to be at hand. But for a while, we will be concerned with the corn crop. Possibly these notes are a little behind time, but undoubtedly are just in the “nick o’ time” for the busy farmer.

The subject of seed corn is a familiar one and investigators, both research workers and farmers, have discussed the matter through experiment station bulletins, extension circulars, and farm periodicals. The amount of improvement of the corn crop by means of field selection, proper storage, and the germination test has been demon-

strated. By field selection, strains can be selected which are not disease infected, which are earlier maturing, which are more acclimated to the community, and which possibly will be better yielding plants. Proper storage will preserve this selected seed through the winter months. There are practically but two points to keep in mind if one cares to preserve the corn in good condition, namely, First, the storage place should be dry and have provision for artificial ventilation, and, second, the place should be free of mice and rats and injurious insects. The germination test is of no little importance. Whether the seeds are tested by the “rag doll” method, between moistened blotters, or in a small shallow box containing soil, there is little difference. The big point is to make the test carefully and to determine a fair degree of accuracy the vitality of each ear of seed corn.

It would be useless to go into details of a germination test here, but as was

stated before, the exact vitality of each ear should be determined as nearly as possible. The vitality of an ear is an expression of the number of healthy seedlings which will sprout from a definite number of grains of corn. Usually six grains are tested from each year and if they sprout five healthy seedlings, the vitality would be said to be 83 2-3. It would seem that if we had selected our corn in the fall of 1919, and had preserved it carefully through the past winter, and have tested it, we would be "all set" for May 15th. We date the beginning of our corn growing race at May 15th because experiments indicate that for every day corn planting is delayed in Ohio after May 15th, the yield of corn is decreased by one bushel per acre.

But we are talking of a condition which exists on but few Ohio farms—field selected, properly preserved, and tested seed corn. It is too late for part of the program, but we can test our corn and possibly with a little hustling combined with head work, can get our corn crop in the race in time to finish well up to the standard. Use any method of testing, but do it and do it accurately. Then from the tested seed, select the best for planting.

Again, perhaps we have only a limited amount of corn from which we can take our seed. In such a case, we can discard but little, if any. Also our corn may not average more than 70 per cent vitality. If such should be the situation, what would we do? Well, such is a situation on most farms. Shall we plant poor seed or secure seed corn from places somewhat distant from our own location?

First, we will consider the case where a farmer has a limited amount of seed testing from 65 to 70 per cent vitality. The importance of using

seed corn that is adapted to the community can not be over-emphasized. A strain of corn secured at a distance of but 60 miles might have grown under quite different conditions and its performance might be surprising in its new home. Even if perfect germination might be secured, this practice may be unwarranted because frequently smaller yields and inferior quality are the results. The fact that some writers attach so much importance to perfect germination discourages farmers in selecting seed corn from the field, especially since experience teaches that such seed can not be selected. Perhaps if our seed tests but 75 per cent, we should use it in preference to unacclimated seed. To use such seed, a definite knowledge of the vitality or germination of the seed must be known and the corn planter adjusted accordingly. Past experience seems to indicate that three plants per hill, with hills spaced 44 or 48 inches apart each way, is the most perfect stand. However, the thickness would differ with the climate and soil. The yield of corn is not proportioned to the stand (provided the variation is within certain limits) because the corn plant is adjustable. A variation of from 15 to 20 per cent from an ideal stand is practically negligible. If some hills have three, two, or one, plants, it is reasonable to believe (as is the case) that some of the neighboring hills will have four plants. Thus because the corn roots spread from row to row, nearly all of the moisture and available fertility will be used.

Hence, if our custom is to plant three kernels per hill and our seed tests only 75 per cent, we will need to plant four kernels per hill. Then, provided crows, pheasants, moles, and gophers

(Continued on page 342.)

THE CROPS EXPERIMENT PLOTS

By PROF. J. B. PARK.

ONE hundred miles of space and inconvenient train connections between the University and the Experiment Station at Wooster do not encourage frequent trips between the two places. This makes the work of the station largely unavailable to students except in printed form. Valuable as the published reports are as teaching aids they do not fully compensate for the lack of opportunity of seeing the work in progress at frequent intervals. Likewise the instructors felt the need of having first hand experience with field experiments, both for the sake of their teaching and to satisfy a desire to contribute something to their subject. Moreover for the development of graduate work in a department it is indispensable that the instructors have research in progress. For these reasons the department of Farm Crops has attempted to develop research both in the laboratory and in the field.

Some work has been conducted in the crops garden since 1915. In 1918 expansion was made possible by assignment to the department of 20 acres of land across the Olentangy river, known as the Kautz farm. This field has been surveyed off into rectangular ranges of about two acres each and subdivided into one-fortieth acres with grass roadways 20 feet wide separating the ranges.

The experiments in progress may be classed into two general groups. Plant Breeding and Crop Production. In practically all work in this subject time is an important factor and the work must extend over a period of years before conclusions can safely be drawn.

PLANT BREEDING.

The purpose in this work is three-

fold: (a) to study some of the fundamental problems of heredity; (b) to develop technique and methods for the breeding of plants and (c) to produce improved varieties for distribution to the public. The following are some of the projects now in progress.

1. Inheritance studies in hybrid wheat, oats and barley. This experiment has been in progress for five years and a first report of the work with barley and oats is now in preparation. The barley has kicked over the traces and tangled up our theory harness by producing long beards on individuals which by all the known laws of propriety and orthodoxy should either have worn hoods (literally) or remained beardless. (Who knows what profound and deep seated biological disturbances may have resulted from the recent sudden creation of 20 million mature beardless and some hooded voters where none existed before.) The attempt to understand and explain the behavior of these plants has been and still is a very interesting problem.

The economic aspect of the barley work lies in the attempt to secure from the hybrid populations new varieties which are superior in yield and other qualities. The thing most sought for is a high yielding beardless barley, since the formidable beards of our best varieties at the present time are very objectionable. The prospects for success look very bright as many strains have now been secured which breed true to the beardless character and seem to be vigorous and productive. Only several more years' test, however, can prove whether or not they have real value.

In the oats work, from a cross be-

(Continued on page 346)



OF
OHIO STATE UNIVERSITY
A Medium for Exchange of Ideas Between College and Farm

OUR JOB

In these days when we are trying to get down to a prewar basis the farmer is naturally the first person to suffer. Farmers as a class are beyond all doubt the conservative and stabilizing influence of our country. Indeed it is a great duty and opportunity that they have to serve mankind at this particular time by displaying these qualities. Consequently they must not fail the greatest of all nations.

America, as it stands today, needs the very best of leadership not only of manual laborers but brain workers as well. Without the most intelligent and consecrated American leaders the mass of people are liable to commit more wrongs than they are rights. After all it is the public welfare that must be served first and last and whatever is accepted as best for all must necessarily be the best for each of us.

What does this mean for the farmer? It means that any type of agriculture or any other industry which does not furnish the very best social and living conditions cannot exist. We, as students in the College of Agriculture, should stand for these principles of better living and feel proud of our duty to serve mankind thru the farm, the greatest of all industries.

COOPERATION

In the recent convention of the National Farm Bureau Organization, President Howard offered the following lines of organization for this coming year: legislation, cooperation in marketing, educational publicity, transportation, and a general research department covering the lines of agricultural economics, trade relations, statistics and distribution of products.

This is a platform that is going to give the farm bureau much to do and one which will mean far better living conditions for the farmer when he gives this organization his utmost support. There has been a tendency for the farmer to live a simple life to himself and follow the lines of least resistance. He has just begun to realize that if he is to have a part in the world's affairs he must get out of the rut and associate with the people that are doing things in the world. The Farm Bureau requires the cooperation of every farmer in the country in these great strides that it is taking for the betterment of agricultural conditions. It behooves every farmer to become associated with this organization and receive a part in the benefits that it is accomplishing and that it will continue to accomplish in the future.

THE RURAL CHURCH

At the inter-denominational conference of Ohio church leaders, held in Columbus, Farmers' Week, a minimum wage of \$1500 with a house and automobile furnished by the church, was recognized as the standard for rural churches. This meeting was held under the auspices of the Ohio Federation of Churches. Further requirements call for a resident pastor adequately trained and equipped, and for a church building adequate to meet the social as well as the purely religious needs of the community. The meeting also brought out the excellent opportunity offered rural pastors by the summer school at Ohio State University from July 12 to 22. Altho not entirely up to the standard advocated by us in a recent issue, this is undoubtedly a step in the right direction.

"CLEAN HOUSE"

History tells us that when the pirates of the Mediterranean were demanding that various countries pay them tribute, the following words spoken by an American statesman were soon echoed throughout the country: "Millions for defense but not one cent for tribute." Conditions at Ohio State evidence a similar thought, a million for physical recreation but not one cent for education. To be sure this is not literally true in its entirety, neither is the money raised for our Stadium evidence of faulty principle. Nevertheless, conditions at Ohio State demand consideration and adjustment.

In the first place, let us turn our attention to the Agricultural Engineering Department. This department is put to considerable disadvantage by the location of buildings, and lack of funds as well as space on the farms to carry out the necessary experiments. Of course the Experiment Station should handle this, but here again a need is evident, there being no provision whatever for carrying on this work. Why not have a special department of Agricultural Engineering at the Wooster Experiment Station? The same conditions are in evidence in other departments, but appropriations have been made to relieve somewhat the poor condition.

Ossification is another thing to be contended with at Ohio State. Years is not, necessarily, a requisite, as some men ossify at a very young age. Those professors so affected should either select the proper course of action or be advised to by those in authority.

Misfits present another serious problem which could be dealt with as above.

Farmers' Week showed the need of a larger assembly hall. To this need the reply is made that no one will bid and that the cost plus basis is unsound. Does this explain everything or is it just an excuse?

Last spring five hundred students of the College of Agriculture signed a petition asking for an instructor in Agricultural Journalism. We do not have one as yet. Why? The students demand progress and receive excuses.

Ohio State is one of the largest universities in the United States and, of course, should be one of the foremost educationally as well as athletically. To accomplish this requires funds. Big men, the kind Ohio State needs, will not donate their services even in this worthy cause for the reason that other schools will pay the price. In other words we should "Clean House," but to do this we must have funds to outfit the "cleaned rooms" as the movement advances.

::: HORTICULTURE :::

AVOID THREE PESTS IN SELECTING YOUNG TREES

Clean nursery stock is important in selecting trees for planting new orchards, according to Paul Thayer, of the Ohio Experiment Station.

"Three pests most commonly found on nursery stock are crown gall, woolly aphis and San Jose scale.

"Scale may be controlled by dipping the tops of the young trees in a solution of lime-surplus spray. The scale can be identified by circular dots about the size of a pinhead, usually on a slightly sunken area of bark.

"Woolly aphis is identified by marked swelling on the roots. Roots, when badly attacked, resemble strings of beads. Trees with this infestation should be rejected.

"Crown gall manifests itself in two forms; as tumors on the roots or as a mass of fine fibrous roots."

TWO NEW ORCHARD PESTS IDENTIFIED

Two new orchard pests which threaten to become of serious consequence to the fruit growers of Idaho were discovered during the past summer by R. H. Smith, entomologist of the University of Idaho Experiment Station. These are the Indian Peach Aphis and the Imported Spider Mite. The former is a native insect of India and probably has only recently been introduced into Idaho. It was first discovered last spring near Twin Falls, where it was causing very serious curling of the leaves of prune trees. Later investigation revealed that it was doing more or less injury to prune, plum, and peach trees about Boise and Payette,

and that it was generally distributed over southern Idaho.

Altho not yet discovered in Ohio, it will probably pay to keep in touch with the developments.

FERTILIZER PAYS

Experiments in apple orchard rejuvenation conducted in southern Ohio sections show a gain of 80 barrels an acre as an average for a 5-year period where fertilizers have been used to stimulate the apple crop. With apples selling at \$7 a barrel this means an increase of \$560 per acre. The cost of fertilizing is about 35 cents a tree or \$12 an acre.

The fertilizing program now recommended for orchardists consists in the application of 5 pounds of nitrate of soda (or 4 pounds of sulphate of ammonia) and 5 pounds of acid phosphate, applied in a circular form under the outer extremities of the branches of the trees.

The grass-mulch system, which consists in mowing the grass produced by these fertilizers and allowing it to lie under the trees where cut, is also favored. It has been found that the tillage-cover-crop system does not produce larger yields than the grass-mulch method, while the cover-crop system is more expensive in operation.

It is time to think about the garden and fruit patch again. Everbearing strawberries set out this spring will give results next fall. What kind and how many are you going to set out? Get the order off for them very soon. It will soon be time to prepare the ground to plant.

RASPBERRY RUST

Blackberries and Black Cap Raspberries are often injured by Raspberry Rust, a disease which also goes by the name of Orange Rust, from its characteristic color. The Bureau of Plant Industry, Pennsylvania Department of Agriculture, says there are two stages of it, the first of which shows on the leaves and stems of individual plants as small rust spots dotted under the leaves. Such a plant has a sickly yellow color that can be recognized a hundred feet away. In the succeeding stage the brilliant orange rust develops in numerous furrows or ridges on the underside of the leaves and so plentifully

are spores produced that the ground and the surrounding leaves may be tinged with the deposit of spores.

The only remedy for Raspberry Rust is to dig up and burn the whole plant as soon as the first sign of rust is seen on it. The rust fungus grows into every part of the root and shoots so that cutting off at the ground is of no use, as the new shoots will also be affected. The plant will always be worthless once it has rust, so it should be destroyed before the spores appear or they will carry the disease to other plants. If affected bushes are burned or completely buried as soon as dug there will be no danger of this sort.

SOME OF THE INSECT PESTS FOUND IN NORTHEASTERN OHIO

By EUGENE W. MENDENHALL, State Inspector, Bureau of Plant Industry.

MY inspection work for the last year was in northeastern Ohio in the great nursery and orchard section of the state.

Relative to insect pests and outbreaks, I have found nothing particularly new, although I have kept my eye out for new things that might enter our state; for example, European corn borer, Japanese beetle, Oriental peach moth, Gypsy moth, and other pests which, in time, will no doubt be within our borders.

I find conditions about the same as in other nursery and orchard sections—a good deal depends on the inspector in his inspection work and in enforcing the Nursery and Orchard law and the willingness of the nursery men and adjoining property owners in cleaning up and taking care of the dangerous insect pests that might infest their premises. It is sometimes a little hard to make adjoining property owners clean up if they are not inclined to look at

the public good and how the other fellow is harmed and even driven out of business, but we don't anticipate very much trouble any more. Some of us can remember about fifteen or twenty years ago when the Nursery and Orchard Inspection Law was first established, that we had considerably more trouble enforcing the work than we do now.

The San Jose scale, which was responsible for our Nursery and Orchard Inspection Law is no longer feared, as it was in the days gone by. It is now only a matter of fact that we use dormant sprays and it has rather been a blessing than a curse, for it has compelled us to do more spraying than we other wise would have done.

The nursery-men, who have been getting large shipments of importation stock got only small amounts last year, so this has cut down materially the liability of introduction of new insect pests. The quarantine regulation on

importation stock will, of course, lessen our trouble from foreign lands.

But we already have some very troublesome pests to contend against in our nurseries, orchards and fields and we might consider a few of them as I found them in northeastern Ohio last year.

The Aphids or plant louse: These are claimed to be natives of our own land and have become very troublesome in the nursery and orchard as well as in field crops. Their interesting and often complicated biologies have attracted the attention of investigators, not only among entomologists but among workers in the larger field of zoology and general biology. While a large amount of work on the life histories and the biologies of Aphids has been done, but little progress has been made in their classifications.

On account of their great economic importance and the necessity of their study in the development of control measures and the lack of knowledge concerning their systematic relationship, much confusion results.

The Woolly Aphis (*Eriosoma Langera*)—Hausman—is one of the most troublesome and widely distributed apple pests. Its ravages have long been known, even as early as 1832. It is now present in nearly every region of the globe in which the apple is grown and the losses caused by it can scarcely be estimated. The damage is particularly serious in nursery stock and the young trees and is less often important after the tree has once become well established and of some size. We have used several remedies for its control and I believe tobacco dust about the roots is the most successful, or a strong solution of soap or tobacco is also very good. The use of Bisulphide of Carbon for woolly insects is the same as for grape root Aphis. It should be ap-

plied in two or three holes, about the depth of 6 to 12 inches, and not closer than 1½ feet. This remedy of course is quite expensive.

In Ohio our nursery-men have suffered great losses from this little insect. Where nursery stock has been grown on the same soil for a long time it becomes worse and the losses to the nursery-men are greater and a change of location is advisable.

There are several species of Aphis, commonly attacking the fruit and foliage of the apple, while there are a few more of less importance that are known to infest the foliage. The Rosy Aphis, the green-apple Aphis, the European grain Aphis, and the clover Aphis, concern the fruit-grower most. As we know the Aphis feeds upon the sap, which is sucked up through a beak pushed down into the tissues of the plant. They cause a curled and distorted appearance of the foliage. When the insects are abundant the drain upon the plant is very great, interfering with proper growth and development and, on the extreme, causes death of the infested parts. The leaves and shoots of plants attacked by Aphids are frequently seen to be covered with a black substance as if dusted with soot. This is due to black fungus, which grows on the honey dew exuded by the Aphids, and is not especially injurious though often objectional since it mars the appearance of the plant and fruit. Ants of themselves are not usually the cause of trouble but merely denote the presence of Aphids.

As I will not have time to go into the life history of these insects, I will merely mention the troubles the nursery-men and orchardists are having in the control of each pest. It means diligence on the part of nursery-men and

(Continued on page 338)

MATTIE'S WASHING MACHINE

By MADGE GRUBB.

(Continued from last issue)

"Yes, she was thinkin' some of buyin' one," he concluded carelessly. "She ought to ha' bought it by this time, though."

He looked at his great silver watch.

"Said as how she was waitin' for you to come and see it afore she bought it," volunteered Abe. "If I seed you I was to send you up. Said she'd be in the hardware room."

John's laugh was a bit hollow.

"Now ain't that just like a woman?" he demanded. "Can't even pick out her own washin' machine."

He started up the street toward Borland's.

He lingered outside until he saw Abe Tinker coming back up the street; then he went in and took up his stand by the yard-goods counter near the door. Frank Borland was measuring off black silk for a stylish-looking woman in a brown-plumed hat. John recognized her as Mrs. Fuller, the banker's wife.

"Good morning, Mr. Patterson," said Mr. Borland, busily plying the scissors. "Your wife is back in the hardware, I believe, waiting for you."

John Patterson stuck his head out of the door and craned his neck to see Old Prince standing by the hitching post, haunches lowered, head down—the picture of tranquility.

"I jest don't like to leave the horse," he said, his voice full of anxiety.

"Oh, are you driving one of the colts?" asked Br. Borland, wrapping up the black silk.

"No, oh, no," stumbled John, "but the tie-rope is weak, and Old Prince has a mean streak in him. He'd jest as soon leave me and the Missis to walk home as not. So, if you are back in the

hardware, Mr. Borland, you might jest tell her I'm waitin' here, and we ought to be startin'."

Mr. Borland spoke to his half-grown son, who happened to be sitting on the end of the counter, listening.

"Run back, Harold, and tell Mrs. Patterson her husband is waiting and can't leave the horse."

The boy scampered back along the aisle while John peered solicitously out at the dozing Old Prince.

In a few minutes the boy came romping back.

"She asked me if I would mind the horse, just a bit," he said. "There's a washing machine she'd like you to look at. I'll watch your horse real careful. Is it the white one down there in front of the grocery? Gee, do you think the rope might break?"

He dashed out in eager hope of excitement.

Back along the aisle slumped John Patterson. Two people stopped to tell him his wife was waiting for him back in the hardware. By the door he paused. Mattie was seated comfortably on a straight chair within a circle of brightly painted washing machines. Beside her was Abe Tinker's wife and standing near was a farmer's wife from over by the Corners. John Borland was declaiming volubly on the fascinating subject of washing machines.

John Patterson looked longingly toward the outer door and the street. He felt the fat purse in his breast pocket. Then he sighed sadly and entered the hardware room.

"Here's Mr. Patterson now," announced Borland, clapping him on the shoulder.

John grinned broadly, and shot a piercing glance at his wife who was

bending over, arranging the contents of her market basket.

"If these men ain't the worst things," simpered Mrs. Tinker, "Mattie said you'd jest a little bit of business at the bank, and here she's been waitin' an hour."

"These ladies have been having a fine visit," smoothed Borland. "And bank business does take considerable time."

"I sold some of my hogs," blustered John, "and I was fixin' up the terms of sale."

"Hogs are bringing a fine price this fall," remarked Borland, going over to one of the largest washing machines "Makes it nice for the farmers. They can have a few luxuries now, too."

John Patterson wondered why Jim Borland had never before impressed him as a "windy sort of fellow."

"Now this is the machine Mrs. Patterson, was admiring," went on Borland. "It is fifteen seventy-five. She likes that Peerless, too, but it is twenty dollars. She isn't sure she wants such a large one."

Borland lifted the lid of the smaller machine and slowly turned the crank. John Patterson looked at the machine and then at his wife. Over her market-basket, Mrs. Patterson watched the machine.

"I was jest tellin' them," she said softly, "how proud you was of havin' the best machinery about the place, and how bad you said it looked for me to be usin' a tub and board when I could have better."

John cleared his throat.

"That's right," he said loudly. "I was buyin' a binder, and I said, h-m, the Missis ought to have a washer. Now is that there the one you admire, Mattie?"

"That one or the Peerless. I do sort

of like the Peerless, John. But, of course, it costs more."

"I have a Peerless," said Mrs. Tinker. "Abe got it for me three years ago now, and I like it real well. Of course, they do cost more."

"They are higher priced," agreed Borland.

"I jest don't know," mused Mrs. Patterson.

"You don't have to decide today," said John, eagerly grasping at the straw. "Take a day or two to think it over."

His wife shook her head gently.

"Mr. Borland is going to the station this afternoon for some freight, and he could bring it right out," she said, lovingly turning the crank of the Peerless.

"It's better to wait than get one you'd not be satisfied with," urged John.

"Oh, I'd be satisfied with either one, John," breathed Mattie.

"Abe always says it's better to pay a little more and get things good," remarked Mrs. Tinker. "Of course there's five dollars' difference."

"We'll take the big one," boomed John Patterson, diving into his vest pocket for his purse.

The farmers' wives started for the door. Mrs. Patterson set her market-basket on a chair and began fastening up her coat.

"John always decides these things for me," she said. "His judgment is so much better than mine."

By Courtesy of "The Campanile," literary magazine of Ohio State University.

INVENTED BY A WOMAN

The ice cream freezer was invented by a woman, according to the Detroit News, and it sounds reasonable. If a man had invented it, he would have made it so a woman could run it without any assistance from him.

VOCATIONAL AGRICULTURE

BOYS' AND GIRLS' CLUB WORK, ETC.

E. B. BARKER, Editor; J. A. MALICK, Assistant.

WINNERS

Fifteen departments had corn on display at the Corn Show held in connection with Farmers' Week at the University. From these Vocational Departments there were about 45 entries, and the department at Ridge Township was the outstanding winner. The winners were as follows:

Ten Ears of Yellow Dent.

1. Paul Fiddler, Brookville.
2. Eddie Allen, Van Wert.
3. Luther Williams, Ridge Twp.
4. Rowland Silcott, Washington C. H.
5. Wilby McCoy, Washington C. H.
6. Vaugh Palmer, Ridge Twp.
7. William Utzinger, Grove City.
8. Homer Williams, Vaughnsville.
9. Willard Aukman, Lanier Twp.
10. Willie Long, Canal Winchester.

Ten Ears of White Dent.

1. Carl Chambers, Ridge Twp.
2. Horace Knittle, Ridge Twp.
3. Horace Tindale, Ridge Twp.
4. Frank Reed, Ridge Twp.
5. Excel Kneeden, Hillsboro.
6. Ivan Brener, Canal Winchester.
7. Ernest Congill, Ridge Twp.
8. Arthur Wertz, Hilliards.
9. Floyd Henderson, Cadiz.

WHY NOT IN OHIO?

The following is the way that Boys' and Girls' Club Work is managed in Colorado according to a recent article by E. J. Leonard, the State Farm Bureau secretary. On Saturday morning, if one arises early enough, he will see

the boys and girls busy gathering fresh vegetables and preparing to take them to market. We wonder where the vegetables come from, but after a little inquiry we find that these are some of the vegetables which were grown by the boys and girls from their own gardens. Perhaps I should not say that they were grown on their own gardens because they were not their own, they were the vacant lots that were in the towns which were given to the boys and girls if they would cultivate them.

These boys do not have to raise vegetables, but have the privilege of putting the lots to the kind of products that they like best. It would be a sad mistake to make all the boys grow vegetables just as it would be to pass a law that all the farmers of a state would have to be horticulturists. Some men would not like that line of work but would rather work at something else and would no doubt make a better success if they were allowed to take up some other line. We find that it is this way with the boys and girls because in a small town of Greeley, Colorado, there are 187 boys and girls raising gardens, 37 raising chickens, 33 rabbits, and 6 caring for pigeons.

These boys and girls are all money-makers as is proven by one instance which Mr. Leonard cites especially to us, where two of these young horticulturalists had one and one-half acres in garden. Of this small amount they have about one-tenth of an acre in peas; they have 75 rabbits and 42 chickens. They have already sold \$82 worth of peas and

are still expecting more, not to mention anything from the other lines.

There are many other such cases that are practically as good, but the best of all is that these boys and girls get to keep this money for themselves. In one instance a girl made enough money in one week to buy herself two new dresses. This girl will no doubt be better satisfied with her dresses to think that she bought them than she would be if her parents had bought them for her.

These children bring their produce to the city gas and electric building every Saturday. They have the use of this building for the day and make a real market out of it for the time.

We are wondering why something of this kind could not be worked out in our own state. We have all that is needed to manage it. In some counties, especially where there is a Boys' and Girls' Club Leader, we feel that it would be a profitable thing to put into practice.

It is not only that the boys and girls could make money for themselves, but that they may become better prepared to meet the problems of life. How many college students have ever grown a crop of any size without someone else taking care of the inside business for them? We feel safe in saying that there is a very small percentage of them that have ever had any experience along this line at all. What are we going to do about it? Are we going to be afraid to try and remedy this situation and let things go in the same old rut just because it is easier to let "good enough," as we think it to be, alone?

It is true that it would be hard to get the parents to let a boy have one field and do as he might see fit with it, and if the boy or girl is old enough they would not be satisfied with any less. We can, however, do as they do in some

parts of Colorado; let them have smaller amounts before they are old enough to want more, and then give them all the encouragement possible. This will tend to develop business powers in the future generations and will go a long ways towards making labor situations such as we now have, a thing of the past.

TOWNSHIP ROADS

(Continued from Page 313)

pebbles ranging in size from one-eighth to one and a half inches in diameter, it will make a good road.

Cinder—Good, hard, furnace cinders—free from excess ash—will pack down and make a fair road and at the same time remain porous enough to drain the road well. Cinders are useful in stabilizing a wet clay soil, or in compacting a sandy, loose soil. Ashes are of no value as a road building material.

Slag—There are so many steel furnaces in Ohio, that in many localities slag may be easily obtained. It makes an excellent road metal and under the small traffic of this special type of road will last for many years.

Broken Stone—Both limestone and sandstone are available in many parts of the state, especially in the hills of southeastern Ohio, where there are no glacial gravels. With a careful selection and the use of proper construction methods, good roads may be secured, even with no better material than sandstone.

Brick bats and burnt clay from the brick kilns may likewise be used. Where none of these materials are available at a reasonable cost, the farm road may be made not only passable but for a goodly portion of the year it can be kept quite satisfactory by a systematic

and judicious use of the road drag, together with well placed drainage.

HAULING AND SPREADING ROAD METAL.

After the road bed has been shaped no traffic should be allowed upon it until metaled. The metal should be hauled and spread on the end nearest the supply point, care being taken to spread the metal evenly over the whole bed, raking any large cobblestone or slag forward onto the bed and covering them with finer material. A depth of about 6 inches will ordinarily be sufficient for a farm road. Haul the material over the road already metaled, thus compacting it. Frequently rake or drag the metaled section so that a true crown and a smooth road will result.

MAINTENANCE.

The maintenance of a farm road is largely a question of dragging it frequently, especially after a rain, as soon as the surface has dried out sufficiently so that it has about the moisture of land ready for plowing. Ditches should be kept clean and smooth, all weeds cut along the road and all culverts repaired and kept open. If a mud hole forms, take time to drain it and fill it with fresh gravel, cinder, slag or stone.

TOWNSHIP ROADS.

What has been said about farm roads applies equally to township roads of the light traffic class, except that the width should ordinarily be 14 feet, the metaled surface a little heavier, and the drainage ditches somewhat larger and deeper. Further, the township trustees can afford to own or hire a light steam roller which should be used to put the road into serviceable shape as the road is constructed.

FARMERS' WEEK

Farmers' Week of 1921 was a marked success. During the week 4651 men and 1456 women registered, mak-

ing a total of 6107. This compares favorably with former years. In 1913, the first year, the attendance was 140. There was a slight decrease in attendance in 1918, although the attendance was 2607. In 1920, 5691 attended this annual brain fest.

As the county agents throughout the state are to receive copies of the various speeches for distribution to the farmers, who desire them, we will not include them here.

The Ohio Farm Bureau Federation recommended to the Ohio legislature the construction of a "Temple of Agriculture," to be used by the College, but to be available for Farmers' Week and dedicated to the interests of Agriculture. As we go to press we note with interest that one resolution advanced by the Federation is being favorably acted upon by the State Legislature, i. e. "a state constabulary" to assist in curtailing the present crime wave and to protect our roads from further abuse."

Following are the other resolutions presented:

We commend the State Farm Bureau for its energetic fight against the re-appraisal of land for taxation, and express our confidence that with our support it will win in the end.

We commend the work of the Division of Publicity in the State Farm Bureau, especially in reaching the urban consumer through the city daily's and we thank the press generally, and such other agencies as schools and churches for their hearty cooperation in promoting the farm bureau movement.

We approve the work of the Ohio Farm Bureau Federation in the development of farmers cooperative marketing and purchasing, both through local organizations and through terminal connections, and we urge the early establishment of suitable machinery to finance this work adequately.

We congratulate the State Executive Committee on the plan which has been developed for the correlation and division of labor on state agricultural organizations; point with pride to Ohio's leadership of other states in this solution of a very hard problem, and pledge to the other organizations of the state an earnest effort on the part of our membership to carry out this agreement to the letter.

We favor a system of taxation for Ohio that

will force all who have ability to pay, to pay their rightful share of the cost of the government, whose protection, privileges and benefits they enjoy.

We insist upon the observance of the present tax limitations and favor exceeding them only upon a majority vote of all the electors voting at a general election.

We favor a debt limitation for all taxing districts, and ask the present Legislature to provide the means whereby such limitation may be written into the Ohio Constitution.

We favor a real budget system for the state and taxing districts instead of the make-shift practices now in use in the state.

We favor a graduated income tax, but oppose its enactment in such a way that it will place both the direct tax and income tax on some classes of property, and only the income tax on others.

We favor the graduate inheritance tax.

We favor a tax on trucks, measured by the damage they do to roads and believe that legislation should be enacted to control their weight, size, condition and kind of tires, and limit their speed.

We commend the American Farm Bureau for its efforts to hasten the decision of the United States Supreme Court in the case of the Federal Farm Loan Act.

We favor a thorough study of road material, road construction and road maintenance to the end that state, county and township road funds will be expended to better advantage.

We favor legislation that will give to co-operative farm organizations the undisputed right of collective bargaining in the marketing of their products.

In view of the importance of the closest co-operation of farm women with the work of the Farm Bureau we favor an adequate representative of such in the National, State and County Organizations.

We favor a revision in freight rates on agricultural lime and screening so as to allow the more general use of lime.

We favor the enactment of a Federal Law to prevent the traffic in stolen automobiles.

We recommend that the present legislature submit an amendment to section three, article 12 of the constitution so that the state may be districted for common pleas judgment as under the old constitution.

We recommend that the Ohio Experiment Station be placed under the control of the Board of Trustees of the Ohio State University and maintained as a district institution on an equality with the colleges of the University and that the technical staff of the Experiment Station be exempted from Civil Service.

We urge the General Assembly to enact laws that will preserve our wood lands and provide forests on idle and waste lands.

We favor the enactment of laws to conserve our natural food resources such as fish and game.

We recommend the establishment of a butter fat standard for ice cream and suggest that a minimum of 12% be adopted as the standard.

We favor the enactment of laws which will give permission to organize, extend and operate telephone companies in areas already occupied and which will provide for long distance telephone connections to all telephone companies without discrimination.

We endorse the St. Lawrence water ways project, whereby ocean going freighters may come to ports on our great lakes for loading.

We urge the State Farm Bureau to establish a division which will, upon request, study the conditions existing in any particular county and counsel with the farm bureau leaders there regarding what character of work should be undertaken by the farm bureau in that county.

Whereas, Agriculture furnishes more than one-half of the nation's free money, and pays more than one-half of the nation's freight bills, we deem it no more than fair that agriculture should be represented by at least one agriculturally minded person on all such boards as: The Ohio Public Utilities Commission, the Ohio Tax Commission, the Federal Reserve Board and the Inter-State Commerce Commission, and that at least one-half of the members of the Federal Land Bank Board should be persons of this type.

We urge the present legislature to appropriate a sufficient fund to enable the State University to erect an auditorium which will be adequate to the needs of the University.

We desire to express to the Executive Committee and Officers of the State Farm Bureau our appreciation of their efforts during the past year, and to assure them of our continued cooperation and support.

We extend to President Thompson, Dean Vivian, Director Ramsower and the entire staff of the College of Agriculture our heartiest thanks for their close cooperation with the State and County Farm Bureau during the past year, and for the splendid accommodations afforded for this Annual Meeting.

The proceedings in detail will probably be included in the information sent out to the county agents, but further information can be obtained from this office, or by addressing the secretaries of the various organizations whose names and addresses are listed elsewhere in this issue.

OHIO STATE CORN AND GRAIN SHOW

Perhaps Ohio does not produce quite as much corn as some of her western neighbors, but it would seem to anyone who visited the corn and grain show held under the auspices of the Ohio Seed Improvement Association that the Buckeye State is their equal when it

comes to producing high quality show corn. The show, which was one of the features of Farmers' Week, was held in the gymnasium and even this large building hardly contained space enough for the display of grain and the industrial exhibits which made up the show. Entries were received from two hundred and thirty farmers and seedsmen representing all sections of the state and filling all the classes open for competition. The National Stockman and Farmer Cup, given for the best ten ears in the show, was won by M. L. Combs, of Alger, Hardin County, while the single ear championship went to Jay Lawrence, of Coshocton. Leslie L. Brown, Bainbridge, was given first place in the ten-acre utility contest, thus winning the Grain Dealers' Cup for one year and a cash prize of eight dollars. Sixty-three farmers in the state were entered in this contest, first prize place been given to Brown because he had the highest ten-acre average yield together with a perfect show sample. He was the leader this year in the contest with an average yield of 123.24 bushels per acre. John Gleason, of Sabina, took first prize in the 100 bushel corn club contest, with J. F. Lavery, of Greenfield, second. All of the judging was done by C. E. Troyer, of La Fountain, Ind., winner of the championship at the International Grain and Hay Show, held this winter in Chicago. His championship corn was one of the feature exhibits of the Ohio Show. Another interesting exhibit was a sample of Bronze corn sent in by R. B. Caldwell, of Cumberland, who originated the new variety.

Everyone connected with the show was well pleased with the interest shown by the exhibitors and visitors and the general tendency of Ohio farmers towards seed improvement. Too much

credit for the success of the show cannot be given Mr. W. E. Hanger, secretary-treasurer of the Seed Improvement Association, who is already planning how to make next year's show bigger and better than the one just past.

STATE ORGANIZATIONS

ELECT OFFICERS

Officers elected by organizations holding meetings during Farmers' Week at Ohio State University, are:

Ohio Farm Bureau Federation.

O. E. Bradfute, Xenia, president of the newly constituted board of directors; D. M. Odaffer, Bucyrus, vice-president; new executive committee members, Clarence Henry, Hebron; H. W. Tomb, Bloomville; F. A. Brown, Clarksburg.

The 22 members of the board of directors: H. C. Fast, Napoleon; Albert Binsack, Fremont; H. W. Tomb, Bloomville; Paul P. Elliott, Seville; Clark J. Holverstadt, Letonia; A. F. Moon, Fletcher; Clarence Henry, Hebron; E. A. Liggett, New Philadelphia; E. C. Stratton, Troy; F. A. Brown, Clarkeburg; C. N. Helsner, Thornville; David E. Dunham, Lebanon; O. E. Bradfute, Xenia; J. H. Dawson, Batavia; G. C. Evans, Jackson; Mrs. H. W. Lawrence, Monroeville; Miss Ella Blackburn, New Vienna; Mrs. J. S. Smith, Groveport.

Ohio State Dairymen's Association.

L. P. Bailey, Tacoma, honorary president; Jared Barker, Akron, president; David Snyder, Springfield, vice-president; Prof. Oscar Erf, Ohio State University, secretary-treasurer; H. W. Ingersoll, Elyria; Hugh W. Bonnell, Youngstown; A. W. Place, Jefferson; L. R. Connell, Fayette; H. B. Gooding, Tiffin; H. B. Darning, Cincinnati; L. T. Taber, Barnesville; G. E. Myrder,

McClure; Frank Six, Poast Town, board of directors.

Ohio State Horticultural Society.

C. A. Bingham, Cleveland, president; W. D. Kampf, Coolville, vice-president; R. B. Cruikshank, Ohio State University, secretary; Paul Thayer, Wooster, treasurer; Frame C. Brown, Westerville, member of the executive committee.

Ohio Jersey Breeders' Association.

Hugh Bonnell, Youngstown, president; R. B. Smith, Westerville, vice-president; J. E. Morris, Westerville, secretary-treasurer; Dr. Robert Wyllie, Zanesville; L. P. Bailey, Tacoma; J. S. Devol, Marietta; Chester Folck, Yellow Springs; George Kryder, McClue; H. H. DuBoids, Vigo; Garrett Chidsey, Brunswick; Earl Pyle, Clarksville.

Ohio Seed Association.

Charles Heimberger, Pataskala, president; E. S. Johnson, Stryker, vice-president; W. E. Hanger, Ohio State University, secretary-treasurer.

Ohio Holstein-Friesian Association.

Dr. H. P. Gooding, Tiffin, president; J. C. Burr, Wauseon; O. O. Zehring, Germantown, and Dr. Benjamin Studer, Orrville, vice-president; Dr. H. O. Frederick, Ashtabula, executive secretary, and H. B. Barker, Tiffin, treasurer.

The Ohio Vegetable Growers' Association.

H. H. Richardson, Cleveland, president; Andy Smith, Toledo; J. H. Rice, Ashtabula; George Ballash, Medina; Stevan Cook, Willard, and Dan Egbert, Tiffin, vice-presidents; J. M. Montgomery, Columbus, secretary; J. A. Fornof, Columbus, treasurer; C. M. Deval, Marietta; Julius Zeager, Rockey

River, and E. P. Clay, Massillon, directors.

The Ohio Fruit Growers' Association.

V. H. Davis, Port Clinton, president; U. T. Cox, Proctorville, vice-president; L. B. Yaple, Chillicothe, secretary.

"THE STUFF"

The test of a man is the fight that he makes,

The grit that he daily shows;

The way that he stands on his feet and takes

Fate's numerous bumps and blows.

A coward can smile when there's naught to fear,

When nothing his progress bars,
But it takes a man to stand up and cheer

While some other fellow stars.

It isn't the victory after all

But the fight that a brother makes;

The man, who, driven against the wall,

Still stands up erect and takes

The blows of fate with his head held high,

Bleeding, and bruised and pale,

Is the man who'll win in the by and by,

For he isn't afraid to fail.

It's the bumps you get and the jolts you get

And the shocks that your courage stands,

The hours of sorrow and vain regret,

The prizes that escape your hands,

That test your mettle and prove your worth;

It isn't the blows you deal,

But the blows you take on the good old earth

That shows if your stuff is real.

—Exchange.

When the outlook is not good, try the uplook.

THE CAMPUS ECHO

H. W. HARSHFIELD, Editor; MERRILL CONN, Assistant.

APPLE JUDGING TEAM TAKES THIRD PLACE

Ohio State's apple judging team took third place in the contest at Morgantown, W. Va. The Ohio State team was beaten by both Rutgers College, which took the first honor, and by West Virginia University.

Ohio State also took third in individual judging, when Henry F. Scott, Ag-4, took third place in that contest.

Although not in any way disgraced by receiving third place in the contest, nevertheless it is a disappointment to the leaders in the Agricultural College, as the team entered the meet with odds in its favor. The Ohio State team in December copped the honors at the national contest held at the Ohio State Fair Grounds by the American Pomological Society, against keen competition.

PROF. OSBORNE RE-ELECTED

Professor Osborne, research professor of the department of Zoology and Entomology, was re-elected a member of the executive committee of the American Association for the Advancement of Science.

Dr. Osborne has just returned from a visit to the Iowa State College, at Ames, where he did some work in insect collections and addressed the Iowa State Conservation Society.

On January 10 and 11 he attended the National Parks conference at Des Moines, at the invitation of Governor Harding. He has gone to Florida, where he will be engaged in collecting insects until about the last of March.

STOCK JUDGING CONTEST

Those taking Animal Husbandry 135, the elementary course of the department, completed the course with a judging contest, prizes being awarded for winners out of the class of 130.

Out of the possible 800 points John K. Lucky (Ag 2) copped a gold watch chain and medal with 785 points; Ernest D. Noffsinger (Ag-3) had the choice of a fountain pen, book on "History of Shorthorn Cattle" by Sanders, a "History of Percheron Horses" by Sanders, or "Pork Production" by Smith. He received 777 points.

Clyde R. Roberts, Ag-2; Ralph K. Rowalt, Ag-2, and Paul E. Haag, Ag-2, were third, fourth and fifth respectively. The next five received a silver Ever-sharp pencil.

Eight rings of stock, including beef cattle, dairy cattle, sheep, swine, and horses were judged.

ALUMNI

Herbert A. Watts, '10, is connected with the department of entomology at the University of Tennessee.

Charles W. Hauck, '16, is chief deputy in the state department of horticulture in Yakima, Washington. He is doing experimental work and inspecting fruit in the Yakima valley. With his wife, formerly Josephine Kinney, '18, he is planning to return to Columbus next spring for a visit.

Walter S. Trichie, '16, has been appointed assistant professor of agricultural chemistry at the University of Missouri.

Arthur J. Copeland, '15, is in charge of farm management demonstration with the College of Agriculture at Bozeman, Montana.

John Knox, '13, is managing a large orchard in Arkansas.

Al Thompson, '20, is assistant instructor in vegetable gardening at Harvard. Besides taking his M. S. degree he is doing considerable work in land survey.

THE TRACTOR SHOW A SUCCESS

The Sixth National Tractor Show is now history. "By far the best and biggest display of farming machinery ever seen in the United States," is the unanimous opinion of men who have attended all former expositions of this sort. Truly the show was all that had been promised by the committee and in many ways exceeded their highest expectations. A registration of 52,000 people, of whom 40 percent were farmers, 15 percent dealers, and the remaining 45 percent city visitors, is proof positive that the show was a success.

The 8 Ohio State Fair buildings occupied by the exhibits proved ideal in every respect for the housing of the displays. In fact, the location was so favorable that Columbus is being boosted as the place of the next show. All buildings were connected by enclosed passageways and were adequately heated by especially installed furnaces.

All available space was occupied by exhibitors, the booths varying from ten to one hundred feet in frontage. The sincerity of exhibitors in their attempt to make this show primarily an educational enterprise was everywhere evident. No roaring motors or rattling machinery broke the comparative quiet of the buildings and opportunity was given the experts accompanying the ex-

hibits to answer questions and discuss points concerning their product. All machinery displayed in action—including motors—was silently driven by electricity.

In addition to the individual displays, moving pictures were shown continuously thruout each day of the week. The pictures shown were films supplied by various exhibiting companies showing their tractors, plows, or power machinery in actual field operation. A printed schedule announced the time at which the film of each exhibitor was to be shown.

A series of lectures were presented during the week by members of the engineering instructional forces of the best known agricultural colleges in the Middle West, and other men of well known authority on topics of farm power. F. W. Ives and G. W. McCuen, of the department of agricultural engineering at Ohio State, were speakers on the program.

The National Society of Automotive Engineers held regular meetings at its downtown headquarters during the week and many prominent members of that organization were in attendance at the show. The American Society of Agricultural Engineers was represented by a large number of members present. Frank P. Hanson, secretary of the A. S. A. E., personally managed the educational booth of that society. He was assisted by members of the local student branch.

It is estimated that about \$1,000,000 worth of orders were taken by exhibitors during the week. A member of the Ohio State faculty made a sales survey of the show and "managers were jubilant over the trend taken by business during a show that primarily was an educational one."

HOME ECONOMICS

PLANNING THE FARM HOME

"Does my home work with me?" is the question everyone should ask himself. This is, indeed, a question which is most vital. A conscientious answer will require the majority of us to alter many things.

The factors involved in planning the home are utility, durability, convenience, cost and attractiveness. Convenience seems to be the one that is most neglected and of the remaining utility is the next.

The kitchen, of all the rooms, is very often the poorest of the entire house, in spite of the fact that it is the place where the housewife spends most of her time. It should be small, compact, and convenient, so that she may be able to save some of the thousands of steps needlessly wasted. Cheerful, good light and ventilation, attractive and durable equipment are essentials. A special effort should be made to have both hot and cold water. The kitchen and dining room should be separated only by a wall or serving room. All passages to and from it should be so arranged that the entire kitchen is not exposed to full vision.

The dining room should be bright and cheerful and have plenty of window space. It should be so located that pleasing views may be had from the windows.

The living room is the place where the whole family is accustomed to gather after work or when any member may have some leisure time. It should be first of all restful, pleasant and cozy. The fireplace affords one of the greatest assets. It should be large and prefer-

ably placed the long dimension of the room, so that the entire family can gather around it. It is very bad to build a fireplace near a door unless a wall is placed between them to eliminate drafts. Big, broad windows should be placed on each side of the fireplace, because you don't want blank walls at which to stare. The view from the windows should be the best that the location yields.

The out-of-doors living room, big and spacious, located where the sun will not beat on it, should be available as an assembly place at all time.

The bath room in a farm home is often considered a luxury. It should be found in every home, and be at a very small price. The ideal sewage system for the farm is the septic tank. It is very easily constructed, manipulated, and can be put in by Mr. Farmer during the winter months.

The outside doorway should be inviting, picturesque, and informal. They can be made so very easily and for a very small amount of money. Money has nothing to do with the looks of a place. Very often the cheaper house is the most picturesque and pleasing.

The house should fit the location and all the buildings arranged to make them look as if they really belonged together. The buildings, house, tenant houses and barns should be in one unit. A driveway will serve to bring them together and make a very interesting unit.

These are the things that must be considered in answering the question, "Do our homes work with us?" It is by no means a simple problem, but one

that should be very conscientiously and thoroly approached.

Florence M. Steiger.

(Taken from Wooster Bard Field's lecture, "Does Your House Work With You?" given Jan. 31, 1921—Farmers' Week.)

A NEW CAFETERIA

In order to make the courses of study in the College of Agriculture more practical and to give the students more actual experience in the work of their chosen profession, new features are being added continually. One of the most recent additions of this kind is the Cafeteria in the Department of Home Economics.

You remember the kind of good, substantial eats that mother used to prepare for you? That is what the new cafeteria, which was opened in the Home Economics Building under the supervision of June Findley of the Department of Home Economics, provides for you.

The restaurant was opened Tuesday, February 8th, for women students and members of the faculty of the University. The hours for serving lunch are from 11:00 A. M. to 1 P. M. and one hundred people can be accommodated at one time, making a total of four hundred that can be served daily.

One of the practical phases of the addition of the cafeteria to the department is the opportunity it affords to those students who are studying problems of institutional management; here, in the new restaurant, they may get the practice they want. Student help is hired from the co-eds, so that the cafeteria is self-supporting.

The former foods laboratory rooms are being used for the cafeteria. The best equipment obtainable has been installed, and the kitchen is entirely up to date and modern in every way.

Peppy Pointers

By Powers.

Notes are often necessary, but they are necessary evils.—*Shakespeare*.

Some people are like ragtime—their popularity is short lived.

Judging from the very small number of co-eds at the Tractor Show, we assume that the show did not at Tractor.

Gravity is an attitude of the body intended to conceal the shortcomings of the mind.

We are often unwelcome when we least expect it.

Ag—Wasn't that a fine lecture by Professor Paddock on the Cultivation of Prunes?

Wag—Splendid. He was so full of his subject.

A geologist recently said that the Garden of Eden was in Ohio. Now we know how Adams County got its name.

We stood in the hall at midnight,
Her lips to mine I pressed.
Her father came upon the scene—
Fast the parting guest.

One woman is so fond of an argument that she won't even eat anything that agrees with her.

She had a taste for whistling,
A taste that's not permissible.
But still I don't object to it,
That pucker is so kissable.

ARCADIAN

Sulphate of Ammonia

Fine Physical Condition

In the selection of chemicals for fertilizing purposes, whether it be for the mixture or for use as a separate application, good physical condition is a factor of prime importance.

Most of the mineral carriers of nitrogen are hygroscopic, having the undesirable property of absorbing moisture from the air. Examples of these are the nitrate salts of ammonia, calcium, sodium, etc.

The use of such materials in the mixture is limited to small amounts, because of their tendencies to produce a sticky mixture which on standing is apt to harden and cake. Modern farm practice demands that the fertilizer mixture be fine and dry for easy distribution by machines.

When used alone for top-dressing or side-dressing purposes, hygroscopic salts, because of their tendency to cake quickly, generally require regrinding immediately before using. This operation, when done by the farmer, costs several dollars per ton and often results in much delay just at the rush season.

Sulphate of Ammonia is a non-hygro-

scopic nitrogenous chemical. For years the fertilizer manufacturer has been willing to buy it at a premium, because of its good physical properties. Recently to meet the call for a quickly available top-dressing fertilizer in good condition, we have placed at the disposal of the grower a kiln-dried and screened *Sulphate of Ammonia* under the trade name *Arcadian*.

Arcadian Sulphate of Ammonia comes in fine and dry condition. It does not absorb appreciable amounts of moisture from the air. If stored in a reasonably dry place it will maintain its fine physical properties indefinitely.

Arcadian is meeting the approval of growers in all sections of the United States and is saving them several dollars per ton on the cost of application. They can empty *Arcadian* from the bag directly into the fertilizer distributor or grain drill and apply it easily and uniformly.

Arcadian Sulphate of Ammonia furnishes an all-soluble, quickly-available and non-leaching form of nitrogen. It is a "made in America" product. The guaranteed analysis is 25 $\frac{1}{4}$ % ammonia.

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Baltimore, Md.
Medina, Ohio

SOILS

W. E. KEYSER, Editor.

THE AVERAGE OHIO SOIL

The display of the Soils Department during Farmers' Week created a great interest among the farmers. The average analysis of Ohio soils was exhibited by having the exact number of pounds of each constituent found by the average of 1000 pounds of soil, in its pure form. The outstanding feature of the display was the comparison of the total amounts of constituents found in the soil, which were:

	Lbs.
Water	20
Lime	12
Magnesia	9
Iron	23
Aluminum	51
Silica	740
Potash	21
Phosphoric Acid	1½
Manganese	1
Titanium	7
Sulphur	1½
Soda	13
Organic Matter	38

During this period of unrest a large number of the inquiries asked by the farmers is along the line of marketing and handling produce. This is a very important problem, but we should not lose sight of the soil problems. We cannot grow wheat and corn without soil. We cannot produce a single bale of cotton without soil. Soil is necessary to grow the pig that produces the pork. And the soil is necessary to grow the sheep that produces the wool that is made into woollen garments. Food and clothing, the greatest need of the human race, must come by way of the soil.

A NEW METHOD FOR TESTING SOIL ACIDITY

The Freezing Point Method" for the purpose of determining the acidity and lime requirement of a soil, has been worked out by Bouyoucus and McCool at the University of Michigan. The basis of the test is that the freezing point of pure water is 0 degrees C. and as a soil solution approaches neutrality in concentration the freezing point of the given solution raises, also the more concentrated the solution the lower in degrees is the freezing point. The soil is first frozen and as an acid soil is being neutralized with lime the temperature of the soil solution raises for the solution becomes weaker. When a certain point is reached the raise in temperature of the soil ceases with additional amounts of lime. The raise in temperature up to this point measures the acidity of the soil. But on continuing the additions of lime the temperature remains constant until a certain point the temperature of the soil solution lowers again. The lime has been absorbed by the soil. This point is the true measurement of the lime requirement of the soil. This requirement equals the amount of lime necessary to neutralize the acidity plus the amount of lime absorbed in the soil. With a soil that is not acid the temperature is constant until the absorptive power is satisfied, then lowers. The temperature of an alkaline soil lowers at once.

Looks like everything in the world comes right, if we just wait long enough.—Mrs. Wiggs.



Purina Chows Will Save Them

Those fluffy little chicks are just as tender as human babies. You wouldn't try to raise them on grains any more than you would feed cornbread to a baby. You know that a large percentage of grain-fed chicks die of bowel trouble, and the ones that do live develop slowly and feather out badly. Any grain ration alone has too little protein for lean meat and feathers, and too little minerals for bones. Chicks can't develop right on such a diet.

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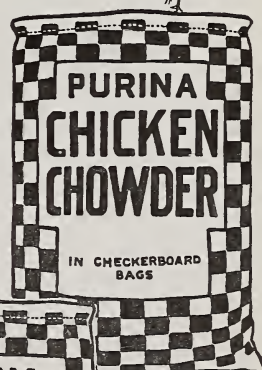
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THE DAIRY

J. E. FREW, Editor.

MILKING MACHINE

CONSIDERATIONS

The modern milking machine is a practical and safe labor-saving device. This has been proved by the results of carefully conducted experiments at several experiment stations, and is also borne out by the experience of practical dairy farmers in all parts of the country during the last fifteen years. Failures in machine milking have been rather numerous in the past chiefly because of the fact that the owner did not fully understand the mechanics of the machines or appreciate the necessity of care in operating them and keeping them clean, or of promptly following up the machine milking by careful stripping. Of late years the failures have, however, greatly decreased in number, as the machines have been further improved in simplicity and efficiency, and the conditions for their successful operation are better understood. It is safe to say that a dairyman who introduces machine milking into his herd with any standard make of machine on the market is now as much on trial himself as the machine. The best remedy for failures in machine milking is to become thoroly familiar with the machine adopted, its adaptation to individual cows, and the requirements for keeping it in a mechanically perfect and sanitary condition.

Milking machines have not as yet been as generally adopted in the dairy districts of our country as in Australia and New Zealand there are but few dairies of over 30 cows that are not milked by mechanical means. With the present scarcity of reliable, efficient

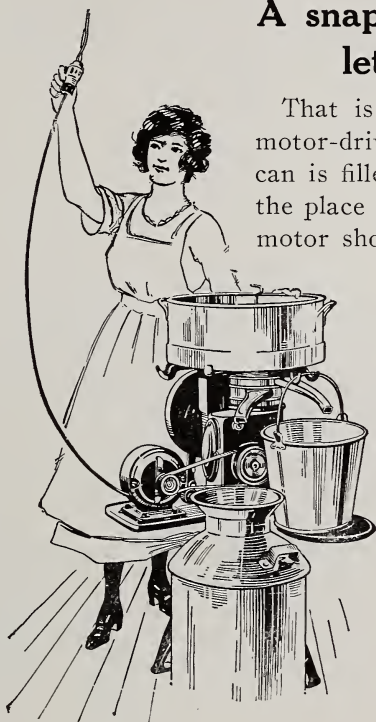
milkers, and the high cost of labor, feed and dairy supplies, the necessity of reducing the cost of milk production becomes greater than ever before. It is possible to do this by increasing the production of the herd thru culling, use of purebred sires and modern methods of feeding and management, or by reducing the operating expenses of the dairy. The milking machine is an important aid in reducing these expenses; one company placing the saving as being over \$400 a year on a herd of 25 cows.

The investigations of experiment stations have shown that milking machines properly operated do not injure the udders of cows or cause garget or other udder diseases. Udder troubles are often due to causes that are not in any way associated with the method of milking practiced; they will occur at times in machine-milked as well as in hand-milked herds, altho less frequently when ordinary care is taken in operating the machine. The best way to avoid troubles of this kind in case of machine milking is to remove the machine as soon as no more milk comes down, and to finish the milking by hand without unnecessary delay. Prompt and careful hand stripping is a most important factor in successful machine milking, even tho the machine leaves only small amounts of milk to be stripped out.

In the selection of the particular make of machine, a number of points should receive consideration, besides first cost and nearness to service agency, such as cost of upkeep, depreciation, simplicity of mechanism and of cleaning. The various machines on the

Primrose---Motor Driven

**A snap of the button and—
let there be cream!**



That is all the work there is to the motor-drive Primrose, once the supply can is filled with milk. Electricity takes the place of human energy. The willing motor shoulders this task and turns the separator at the same uniform speed from the beginning of the run to the end.

The motor-drive Primrose is a self-contained power unit and cream separator. Securely mounted on a substantial base which is an extension of the shelf at the top of the separator stool, the economical, tireless motor is ever ready for instant service. A snap of the electric switch—and the separator is put in motion. The

motor is completely enclosed to exclude dirt and water.

Where electric power is available on the dairy farm, the motor-drive Primrose must be of more than passing interest to the dairyman. Primrose skimming efficiency plus electric operating efficiency makes an unbeatable combination. Sold by the International dealers.

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market differ considerably with regard to these points, and it is evident that no one machine stands out above the others in all respects; also that any farmer with a fair degree of intelligence and resourcefulness need not hesitate to install a milking machine in his dairy if he keeps 20 or more cows. In many cases it may prove advantageous to adopt machine milking also in dairies of 12 to 15 cows, as it will make the owner less dependent upon or entirely independent of hired help. The actual saving in the cost of milking by machine over hand milking is, however, greater in the case of large herds than with small ones and will, in general, be in proportion to the size of the herd. It has been shown that with proper care, and with careful, prompt, hand stripping, milking machines will have no appreciable effect one way or the other on the dairy production of the cows or on the general welfare of the herd, but they will not long render satisfactory service with careless handling and lack of cleanliness. For this reason, milking machines are most likely to prove successful when operated by the owner himself or by help directly interested in their success.

INCREASING

There are now 40 students on the campus enrolled in the department of Vocational Education. This increase in Vocational interest is probably due to the commercial slump.

Supervisors Fife and Stewart attended a conference of vocational teachers at Point Pleasant, Jan. 28 and 29.

CHANGE OF DUTIES

F. H. McMillan will have charge of teaching Agricultural Education 101 at the beginning of the semester.

INSECT PESTS

(Continued from page 320)

orchardists and a wide field of service for the entomologists also.

The serious injury to apple nursery stock, due to the attack of leaf hoppers, is great. There seem to be two species of these hoppers—the common apple leaf hopper and the rose-leaf hopper. The injury caused by the apple leaf hopper to nursery stock is due to the feeding of the nymphs and adults on the under side of the tender terminal leaves, from which they extract the plant juices. As a result of the attack the leaves become under sized and curled, causing a decided check to the growth of the new wood. The grape vine leaf hopper embraces three distinct species—all similar in shape—and all equally destructive. The nymphs hatch in mid-summer or early fall and they hibernate as adults and in the spring they attack the leaves of the grape vines as soon as the foliage appears. They are regarded as among the most destructive grape vine pests. The vineyards in northeastern Ohio showed the effect of the leaf hopper to a marked degree last summer, giving a brownish appearance to the leaves. This type of injury differs from *Aphis* leaf curl, in that the *Aphids* roll the leaves more tightly and curl them on the sides toward the center.

The common red spider (*Tetranychus binaculatus*)—Harr—is very generally distributed in the United States. The species first became conspicuous as a pest to cultivated crops in New England and the Northeast. The early complaints related largely to greenhouse and door-yard plants, and it was not until 1855 that some injury to cotton was reported. This mite has been taken from 183 species of plants, including weeds, ornamental,

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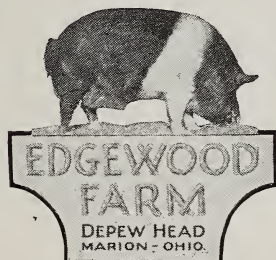
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garden, and field plants. The eggs of the red spider are deposited on the under surface of the leaves on a great variety of plants. The eggs hatch in a few days and the six-legged larvae at once begin to feed by inserting their sharp proboscæ into the tissue of the leaf. The larvae soon moult into eight-legged nymphs. There are a number of generations each year, being according to climatic conditions. I have in mind a nursery block of Irish Juniper that were badly infested last Fall, giving them a brown color. United States Bulletin No. 416 gives a detailed account of the red spider.)

I found the pear slugs (*Eriocampoides limacina*)—Retz—doing considerable damage to pear and cherry stock in the nursery. They are easily controlled by dusting them with air slacked lime, or even finely divided dust. The pear slug is a common pest throughout the country, having been here over a century.

The oyster shell scale (*Lepidosaphes ulmi*)—Zinn—was very troublesome on some kind of ornamental stock in the nursery last summer. The origin of the oyster shell scale is a matter of some uncertainty. It has a world-wide distribution and was introduced into the New England Colonies at an early date. It has a world-wide range of food plants, but is commonly found on apple, maple, horse-chestnut, poplar, willow and lilac. The most effective method of control is kerosene emulsion or fish oil soap, washed directly against the lice just hatched.

The peach-tree borer (*Sanninoidea exitosa*)—Lory—caused a good deal of loss to the nursery-men each year and I found some badly infested blocks last season. The peach-tree borer does great damage to the nursery-men as well as others. It is claimed to be the

most destructive insect of the peach. The larvae are voracious feeders and the trees are always greatly injured and often completely girdled by them. The peach-tree borer is a native species and seems to be confined to Canada and the United States. Its native food plant is thought to have been the wild cherry and probably the wild plum. The control measure is quite a problem for the nursery-men, for it would be an endless job to go over all their stock and dig them out. Perhaps mounding up the earth is the best and most economical way of preventing. Another good way is to keep the stems sprayed with lime and sulphur when the adult is laying her eggs.

I found the bronze birch borer (*Agrius anxius*)—Gory—on a property in Cleveland. This is comparatively a new insect in Ohio and a hard one to combat. When they infest the birch tree it is sure death to the tree and the only prevention is to destroy the tree so the insect cannot spread to other trees.

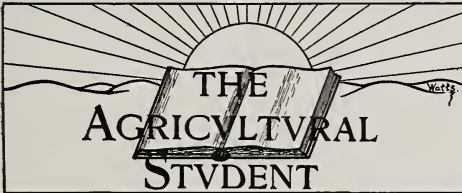
I found one block of Carolina poplars generally infested with the mottled poplar and willow borer (*Crytorhynchus lapathi*)—Linn. This is a peculiar and striking looking snout beetle and it has become one of the most common and perhaps the most disastrous enemies of the willows and poplars in the northeastern part of the United States. It was originally an inhabitant of Europe, where it is a well known pest, and was introduced into this country about forty years ago. The only method of control is to cut the infested limbs or destroy the entire trees. Like all boring insects, they are hard to treat.

I have found a number of other insect pests, such as the yellow-necked apple tree caterpillar, the common tent



COLUMBUS, OHIO

*Show and Commercial
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MARCH ISSUE

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caterpillar, the red humped apple worm, the leaf rollers, the bag worm, the *Cecropia* moth, and others, but none causing any great degree of injury. So I will not consider them at this time.

THE CASE FOR SEED CORN

(Continued from page 314)

do not take any corn, what will be the proportion of hills containing respectively four, three, two, one, and no plants. Theoretically, according to the law of chance, 31.6 per cent of the hills will have four plants, 42.3 per cent will have three plants, 21.1 per cent will have two plants, 4.6 per cent will have one plant and .4 per cent will be bare. Of course if only a few hills are used, the law of chance would not operate as above stated, but every corn field has at least several thousand hills. In an actual field test of 1500 hills, the hills having 4, 3, 2, 1 and 0 plants were distributed in the percentages of 31.36, 22.7, 4.1 and .13 respectively. Thus practice and theory coincide rather closely and the larger the number of hills, the closer will be the correlation. The closeness of correlation of the two would also depend upon the accuracy of the corn planter, for we are assuming that from corn testing 75% vitality, four seeds are planted per hill.

But we do not have to assume everything. At the Nebraska experiment station, two fields were tested containing the same number of plants per acre. One field contained a perfect stand of three plants per hill, while the other field had varied planting of 1, 2, 3, 4 and 5 plants per hill. The two year average of the two fields was 74.3 bu. per acre for the uniformly field and 74.7 bu. per acre for the varied planting. Thus they are practically the same. Hence it follows that it is bet-

ter practice to plant four grains of 75% corn per hill than to send half way across a state and plant three *perfect* grains of corn per hill. Why? Because in the first place, how do we know that imported seed corn is of such germination and in the second consideration, we can use our 75% corn without injury to our crop.

Now we will take up the case of those farmers who have no seed whatsoever, and *must* use imported seed. Is there any hope for them? Most assuredly. The thing for men in such a predicament to do is to secure the seed and find out its vitality. Then plant it as soon as possible. The lengthening of the growing period when unacclimated seed is used, helps out remarkably. This can be done by early planting and then boosting the crop all we can.

Early cultivation is of help, for experience shows that corn grows faster when cultivation begins. Plant food is made more available and weeds are prevented from competing with the crop, thus leaving all the moisture for the corn. We can also boost the crop by applying 200 to 300 pounds of acid phosphate per acre. Phosphorus hastens maturity and as yet, few cases have been reported where applications of from 200 to 300 pounds of acid phosphate has not increased the yield materially.

So to the corn growers of the State, "*On Your Mark*"—"Get Set"—"Go."

A BAD SLIP

She: "Of course, he bored me awfully, but I don't think I showed it. Every time I yawned I just hid it with my hand."

He (trying to be gallant): "Really, I don't see how a hand so small could—er—hide—er—that is—awful weather we're having, isn't it?"

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J. V. TEMPLE, Editor.

DEATH OF FEDERAL BOARD MAN

Mr. James M. Cobbs, of Indianapolis, Ind., who was a member of the Senior Class, passed away Feb. 2, 1921. He served in the 91st Division of the U. S. Army. His death was due to exposure and wounds received during the War.

NEW LITERARY

SOCIETY OFFICERS

At a recent meeting the following officers were elected by the Three Year Literary Society to serve during the second semester: President, H. A. Geisbuhler; vice-president, H. H. Sheeter; secretary, R. A. Champion; treasurer, Harry Wenger.

With the beginning of the second semester several of our men are transferring to the four year course.

Messrs. Lawrence Straub and Robert F. King, former students, spent the week at the Tractor Show and called on friends.

REUNION

Many old friendships and acquaintances were renewed when the Three-Year Ag. Students held their annual reunion the evening of Feb. 2, 1921, at the Ohio Union, with a large number in attendance.

The meeting was opened by an address of welcome by the chairman, Mr. Temple, followed by several selections by the Three Year Literary Society

Quartette, and a piano solo by Mr. Chase. A very interesting talk was given by Dr. Gay, on the benefits of social activities while in college. J. S. Coffey next gave a short talk on the possibilities of the future of the livestock business for the college graduate. Several of the alumni and former students were called upon, and responded by relating their experiences since leaving school. Following the program a series of remarks were made and refreshments were served. Every one took part in a general good time, and the meeting was adjourned.

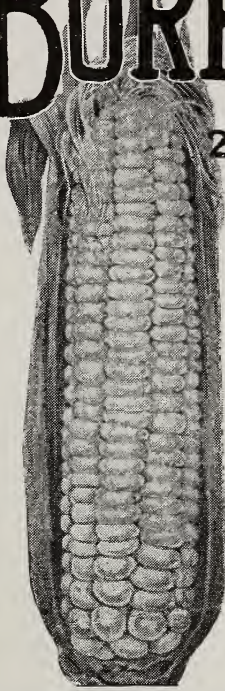
CORN ROT

A recent publication of the United States Department of Agriculture, Farmers' Bulletin No. 1176, "The Control of the Root, Stalk and Ear Rot Diseases of Corn," calls attention to the extensive and serious losses caused thruout the corn belt by the root, stalk and ear rot diseases of corn. It is estimated that the average annual loss caused by these rots may run as high as 10 percent and causes greater damage than all other corn diseases combined. This, perhaps, gives a special significance to the seed corn problem of this year. Corn matured late this year so that even with a normal fall some of it was frosted. However, there has been an abundance of excellent curing weather so that little need be feared from freezing injury to seed corn this year providing reasonable care be given it.

What is to be feared, however, is an increased infection of the root, stalk, and ear rot organisms due to the frost-

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Beets, Burpee's Columbia	.10	Pea, Burpee's Profusion	.15
Detroit Dark Red	.05	Radish, White Icicle	.10
Cabbage, Enkhuizen Glory	.10	Burpee's Scarlet Button	.10
Carrot, Chantenay	.05	Tomato, Spark's Earliana	.10
Lettuce, Burpee's Wayahead	.10	Burpee's Matchless	.15
Burpee's Brittle Ice	.10	Turnip, White Egg	.10
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Cucumber, White Spine	.10	Total value	\$2.60

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ing of this rather immature corn. Quoting from the bulletin: "After the first killing frost the stalks and especially the shanks and the ears are invaded rapidly by these disease organisms. Warm weather following the first killing frost favors these ear infections which greatly reduce the vitality of the seed." This may be more easily understood if one remembers that living tissues, altho succulent, and dry tissue living or dead resist decay; but succulent dead tissue decays very rapidly under normal conditions. Thus the succulent, green corn plant, when killed by frost, is the easy prey of the organisms causing the root, stalk, and ear rots, and all parts of the plant are invaded rapidly before the water content of the plant is reduced to the point where their growth is impossible. Even after the ears are removed from the stalk if the moisture content is high, and drying out takes place slowly, these harmful organisms may grow into and thru the tissue in the same manner as described above, rendering them unfit for seed.

In order to avoid as much as possible the losses due to these diseases in 1921 only disease free seed should be planted. Many of the ears bearing the disease organism may be eliminated by careful selection during the winter as several characteristic symptoms usually accompany the infection. The Farmers' Bulletin mentioned gives complete descriptions of these symptoms, and makes practical suggestions as to control measures, and should be in the hands of every corn grower. Further assistance may be obtained from the County Agricultural Agent or the Extension Department of the Ohio State University at Columbus, Ohio, or the United States Department of Agriculture at Washington, D. C.

M. T. Myers.

CROPS EXPERIMENT PLOTS

(Continued from page 315)

tween a wild oat and the naked oat, both of them of little or no commercial value, have come not only interesting genetic problems, but some strains of hulless oats which give promise of being of economic value. Again it is too early to say much about them, altho the work has been under way for five years.

A promising class of young wheats and another of soybeans have just emerged from the hybrid kindergarten and are beginning the difficult course of rod-row and other tests. After a seven-year period, one or two percent of those that began may finish and will have conferred upon them the coveted degree, I. V., which being interpreted means Improved Variety.

Limited space allows me only to mention some of the other experiments on selection of broom corn for improved quality of brush and the testing for yield of many varieties of small grains and soybeans.

CROP PRODUCTION.

These experiments have to do with certain farm practices which may influence crop yields. The main projects in progress are:

1. A study of corn and soybeans in associated growth. Two years' work has been done in determining the yield of silage and of mature corn when soybeans are planted with the corn as compared with corn alone.

2. Time of cutting soybeans. This is a study of the effect upon yield, quality and germination of soybeans when cut at different stages of maturity. Two years results have been secured.

3. Other newer experiments include yield tests of hay from a series of different grasses and legumes alone and in combination and a study of different methods of handling the sweet clover crop.



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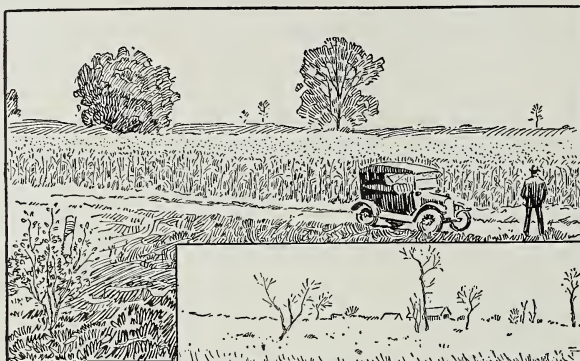
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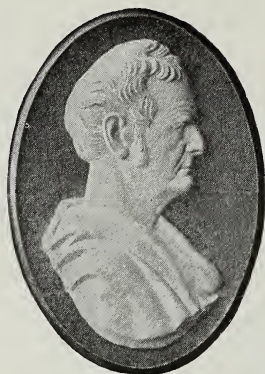
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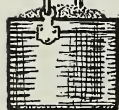
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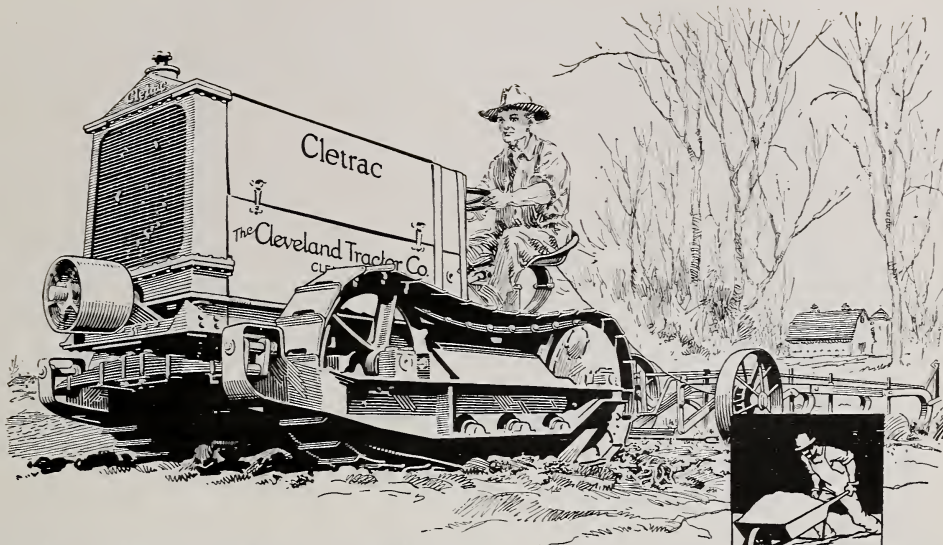
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